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	E	F	N	I	S	Q	H	Q	C	V	K	K	Q	C	P	E	N
Bac 19	<u>GAA</u>	<u>TTC</u>	AAC	ATC	TCG	CAG	CAC	CAA	TGC	GTG	AAA	AAA	CAA	TGT	CCC	GAG	AAC
PF 19			AAC	ATT	TCA	CAA	CAC	CAA	TGC	GTA	AAA	AAA	CAA	TGT	CCA	GAA	AAT

	S	G	C	F	R	H	L	D	E	R	E	E	C	K	C	L	L
Bac 19	TCT	GGC	TGT	TTC	AGA	CAC	TTG	GAC	GAG	AGA	GAG	GAG	TGT	AAA	TGT	CTG	CTG
PF 19	TCT	GGA	TGT	TTC	AGA	CAT	TTA	GAT	GAA	AGA	GAA	GAA	TGT	AAA	TGT	TTA	TTA

	N	Y	K	Q	E	G	D	K	C	V	E	N	P	N	P	T	C
Bac 19	AAC	TAC	AAA	CAG	GAG	GGC	GAC	AAG	TGC	GTG	GAG	AAC	CCC	AAC	CCG	ACC	TGT
PF 19	AAT	TAC	AAA	CAA	GAA	GGT	GAT	AAA	TGT	GTT	GAA	AAT	CCA	AAT	CCT	ACT	TGT

	N	E	N	N	G	G	C	D	A	D	A	K	C	T	E	E	D
Bac 19	AAC	GAG	AAC	AAC	GGC	GGC	TGT	GAC	GCA	GAC	GCC	AAA	TGC	ACC	GAG	GAG	GAC
PF 19	AAC	GAA	AAT	AAT	GGT	GGA	TGT	GAT	GCA	GAT	GCC	AAA	TGT	ACC	GAA	GAA	GAT

	S	G	S	N	G	K	K	I	T	C	E	C	T	K	P	D	S
Bac 19	TCG	GGC	AGC	AAC	GGC	AAG	AAA	ATC	ACG	TGT	GAG	TGT	ACC	AAA	CCC	GAC	TCG
PF 19	TCA	GGT	AGC	AAC	GGA	AAG	AAA	ATC	ACA	TGT	GAA	TGT	ACT	AAA	CCT	GAT	TCT

	Y	P	L	F	D	G	I	F	C	S	*	*
Bac 19	TAC	CCG	CTG	TTC	GAC	GGC	ATC	TTC	TGC	AGC	TAA	TAA
PF 19	TAT	CCA	CTT	TTC	GAT	GGT	ATT	TTC	TGC	AGT		

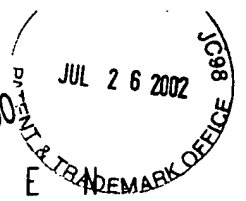
**FIG. 1A**

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Site Eco RI

E F N I S Q H Q C V

Bac 19 GAA TTC AAC ATC TCG CAG CAC CAA TGC GTG AAA AAA CAA TGT CCC GAG AAC

||| || || || ||| ||| ||| || ||| ||| ||| ||| ||| ||| |||

PF 19 AAC ATT TCA CAA CAC CAA TGC GTA AAA AAA CAA TGT CCA GAA AAT

S G C F R H L D E R E E C K C L L

Bac 19 TCT GGC TGT TTC AGA CAC TTG GAC GAG AGA GAG GAG TGT AAA TGT CTG CTG

||| || ||| ||| ||| || || || || ||| || || ||| ||| ||| ||| |||

PF 19 TCT GGA TGT TTC AGA CAT TTA GAT GAA AGA GAA GAA TGT AAA TGT TTA TTA

N Y K Q E G D K C V E N P N P T C

Bac 19 AAC TAC AAA CAG GAG GGC GAC AAG TGC GTG GAG AAC CCC AAC CCG ACC TGT

|| ||| ||| ||| || || || || || || || || || || || || |||

PF 19 AAT TAC AAA CAA GAA GGT GAT AAA TGT GTT GAA AAT CCA AAT CCT ACT TGT

N E N N G G C D A D A K C T E E D

Bac 19 AAC GAG AAC AAC GGC GGC TGT GAC GCA GAC GCC AAA TGC ACC GAG GAG GAC

||| || || || || || ||| || ||| || ||| ||| ||| ||| ||| |||

PF 19 AAC GAA AAT AAT GGT GGA TGT GAT GCA GAT GCC AAA TGT ACC GAA GAA GAT

S G S N G K K I T C E C T K P D S

Bac 19 TCG GGC AGC AAC GGC AAG AAA ATC ACG TGT GAG TGT ACC AAA CCC GAC TCG

|| || ||| ||| || ||| ||| ||| || ||| || ||| || ||| || |||

PF 19 TCA GGT AGC AAC GGA AAG AAA ATC ACA TGT GAA TGT ACT AAA CCT GAT TCT

Y P L F D G I F C S S S N F L G I

Bac 19 TAC CCG CTG TTC GAC GGC ATC TTC TGC AGC TCC TCT AAC TTC TTG GGC ATC

|| || || ||| || || || ||| ||| || ||| ||| ||| ||| ||| |||

PF 19 TAT CCA CTT TTC GAT GGT ATT TTC TGC AGT TCC TCT AAC TTC TTA GGA ATA

S F L L I L M L I L Y S F I \* \*

Bac 19 TCG TTC TTG TTG ATC CTC ATG TTG ATC TTG TAC AGC TTC ATT TAA TAA

|| ||| || || || ||| ||| || || || ||| || ||| ||| |||

PF 19 TCA TTC TTA TTA ATA CTC ATG TTA ATA TTA TAC AGT TTC ATT

FIG. 1B

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ATG AAG GCG CTA CTC TTT TTG TTC TCT TTC ATT TTT TTC GTT ACC AAA TGT  
M K A L L F L F S F I F F V T K C

CAA TGT GAA ACA GAA AGT TAT AAG CAG CTT GTA GCC AAC GTG GAC GAA TTC  
Q C E T E S Y K Q L V A N V D E F

AAC ATC TCG CAG CAC CAA TGC GTG AAA AAA CAA TGT CCC GAG AAC TCT GGC  
N I S Q H Q C V K K Q C P E N S G

TGT TTC AGA CAC TTG GAC GAG AGA GAG GAG TGT AAA TGT CTG CTG AAC TAC  
C F R H L D E R E E C K C L L N Y

AAA CAG GAG GGC GAC AAG TGC GTG GAG AAC CCC AAC CCG ACC TGT AAC GAG  
K Q E G D K C V E N P N P T C N E

AAC AAC GGC GGC TGT GAC GCA GAC GCC AAA TGC ACC GAG GAG GAC TCG GGC  
N N G G C D A D A K C T E E D S G

AGC AAC GGC AAG AAA ATC ACG TGT GAG TGT ACC AAA CCC GAC TCG TAC CCG  
S N G K K I T C E C T K P D S Y P

CTG TTC GAC GGC ATC TTC TGC AGC TAA TAA  
L F D G I F C S \* \*

*FIG. 1C*



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GAA ACA GAA AGT TAT AAG CAG CTT GTA GCC AAC GTG GAC GAA TTC  
E T E S Y K Q L V A N V D E F

AAC ATC TCG CAG CAC CAA TGC GTG AAA AAA CAA TGT CCC GAG AAC TCT GGC  
N I S Q H Q C V K K Q C P E N S G

TGT TTC AGA CAC TTG GAC GAG AGA GAG GAG TGT AAA TGT CTG CTG AAC TAC  
C F R H L D E R E E C K C L L N Y

AAA CAG GAG GGC GAC AAG TGC GTG GAG AAC CCC AAC CCG ACC TGT AAC GAG  
K Q E G D K C V E N P N P T C N E

AAC AAC GGC GGC TGT GAC GCA GAC GCC AAA TGC ACC GAG GAG GAC TCG GGC  
N N G G C D A D A K C T E E D S G

AGC AAC GGC AAG AAA ATC ACG TGT GAG TGT ACC AAA CCC GAC TCG TAC CCG  
S N G K K I T C E C T K P D S Y P

CTG TTC GAC GGC ATC TTC TGC AGC TAA TAA  
L F D G I F C S \* \*

*FIG. 1D*



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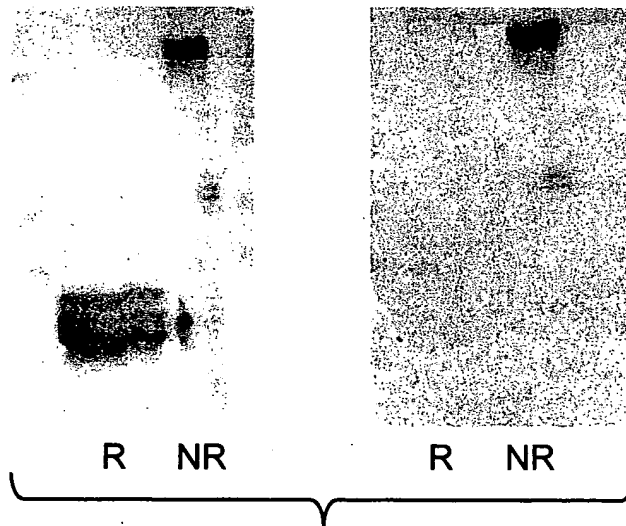
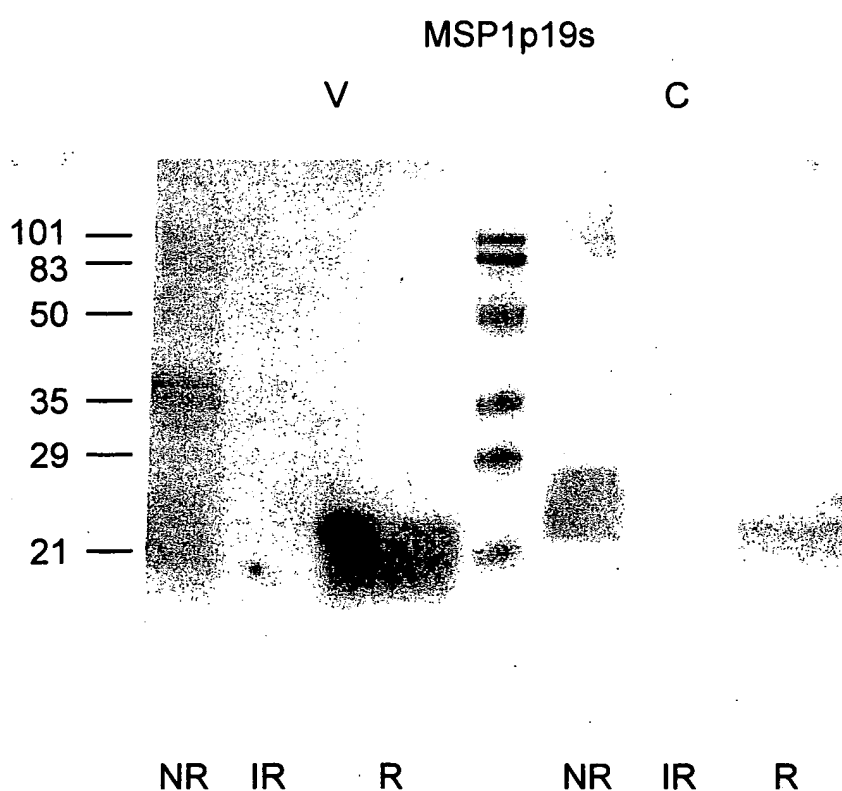
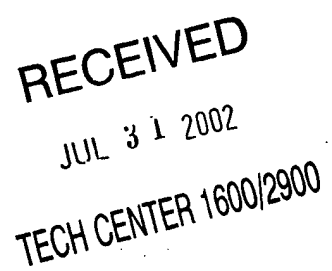


FIG.2A





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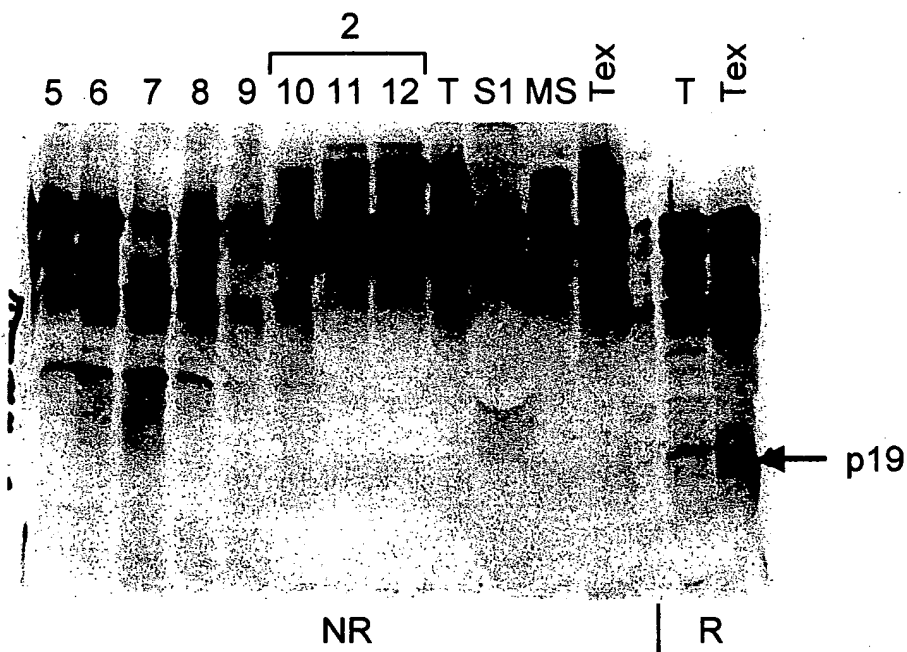


FIG.3A

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ELISA INHIBITION BY P. VIVAX MSP-1 P42 AND P19 ANTIGENS

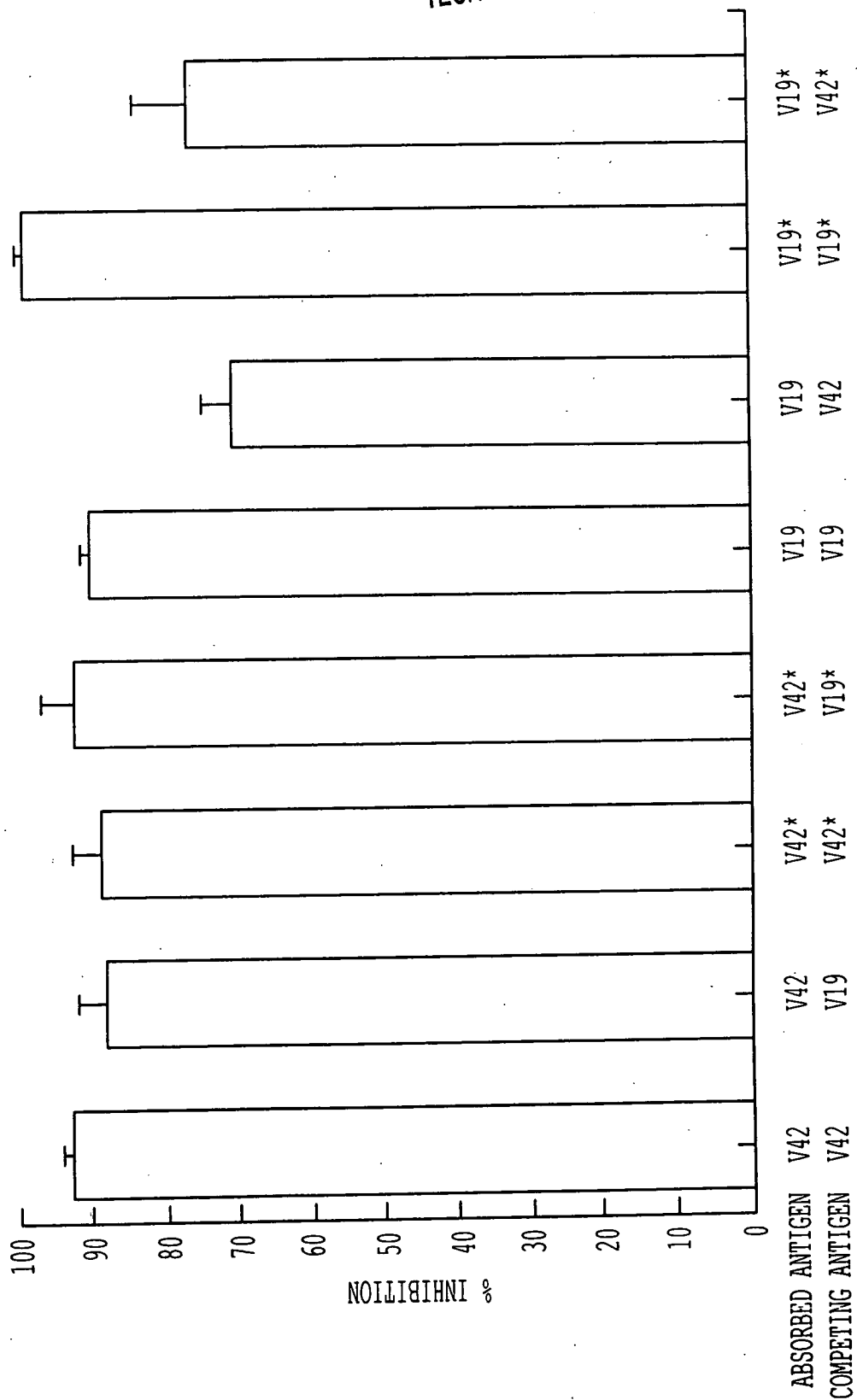


FIG. 3B



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1  
CYNOMDLGI  
VIVAX<BELEM>  
VIVAX<SAI-1>  
CONSENSUS

DOVTTGEAES EAPEIIVPUG INEYDVVYIK PLAGMYKTIK KPLENHVNAL NTNIIDMLDS RLKKNRYFLD VLNSDLNPYS IPHSGEYIIK  
DOVTTGEAES EAPEILPVAG ISDYDVVYIK PLAGMYKTIK KOLENHVNAF NTNIIDMLDS RLKKNRYFLE VLNSDLNPFK YSPSGEYIIK  
DOVTTGEAES EAPEILPVAG ISDYDVVYIK PLAGMYKTIK KOLENHVNAF NTNIIDMLDS RLKKNRYFLE VLNSDLNPFK YSSSGEYIIK  
DOVTTGEAES EAPEI-VP-G I--YDVVY-K PLAGMYKTIK K-LENHVNA- NTNI-DMLDS RLKKNRYFL- VLNSDLNP-- ---SGEYIIK

91  
CYNOMDLGI  
VIVAX<BELEM>  
VIVAX<SAI-1>  
CONSENSUS

DPYKLLDLE- KKKLIGSYKY IGASVDHDMV TANDGLAYYQ KMGDLYKKHI  
DPYKLLDLEK KKKLIGSYKY IGASIDHDLA TANDGVTYYN KMGELYKTHI  
DPYKLLDLEK KKKLIGSYKY IGASIDMDLA TANDGVTYYN KMGELYKTHI  
DPYKLLDLE- KKKL-GSYKY IGAS-D-D-- TANDG--YY- KMG-LYK-HI

REGION I

42

REGION II

ANDKND NAK  
TTEKTDS MAK  
DSKKDEF IAK  
---K---AK

181  
CYNOMDLGI  
VIVAX<BELEM>  
VIVAX<SAI-1>  
CONSENSUS

KEELQKYL PF LSSIQKEYST LVNKVHSYTD TLKKIINNCQ IEKKETETIV HKLEDYSKMD EELDVKQSK KEDDVKSSGL LEKLMNSKL  
KAELEKYL PF LNSLOKEYES LVSKVNTYTD NLKKVINNCQ LEKKEAEITV KKLQDYNKMD EKLEEYKKSE KKNEVKSSGL LEKLMKSKL  
KAELEKYL PF LNSLOKEYES LVSKVNTYTD NLKKVINNCQ LEKKEAEITV KKLQDYNKMD EKLEEYKKSE KKNEVKSSGL LEKLMKSKL  
K-EL-KYL PF L-S-QKEY-- LV-KV--YTD -LKK-INNCQ -EKKE-E--V -KL-DY-KMD E-L--YK-S- K---VKSSGL LEKLM-SKL

REGION III

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271  
CYNOMDLGI  
VIVAX<BELEM>  
VIVAX<SAI-1>  
CONSENSUS

NQESKALS ELLNVQTQML  
KENEKKEILS QLLNVQTQLL  
KENEKKEILS QLLNVQTQLL  
---ESK--LS -LLNVQTQ-L

REGION IV

NMSSEHRCID TNVPENAACY RYLDGTEEUR CLLYFKEDAG KCVPA-N-TC KDNNGGCAPE AECKMNDKNE  
TMSSEHTCID TNVPDAAACY RYLDGTEEUR CLLTKEEGG KCVPASNVTC KDNNGGCAPE AECKMTDSNK  
TMSSEHTCID TNVPDAAACY RYLDGTEEUR CLLTKEEGG KCVPASNVTC KDNNGGCAPE AECKMTDSNK  
-MSSEH-CID TNVP-NAAACY RYLDGTEEUR CIL-FKE--G KCVPA-N-TC KD-NGGCAPE AECKM-D-N-

FIG. 4A. 1

361  
 CYNOMOLGI IVCKCTKEGS EPLFEGVFCS  
 VIVAX(BELEM) IVCKCTKEGS EPLFEGVFCS  
 VIVAX(SA1-1) IVCKCTKEGS EPLFEGVFCS  
 CONSENSUS IVCKCTKEGS EPLFEGVFCS

FIG. 4A.2

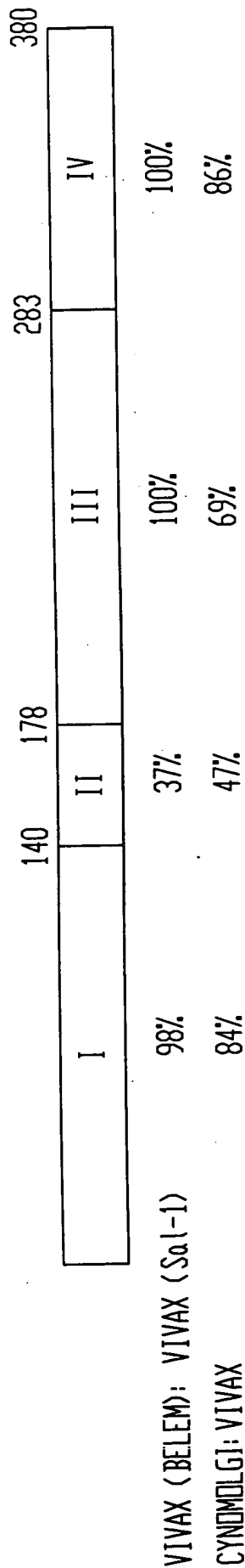


FIG. 4B

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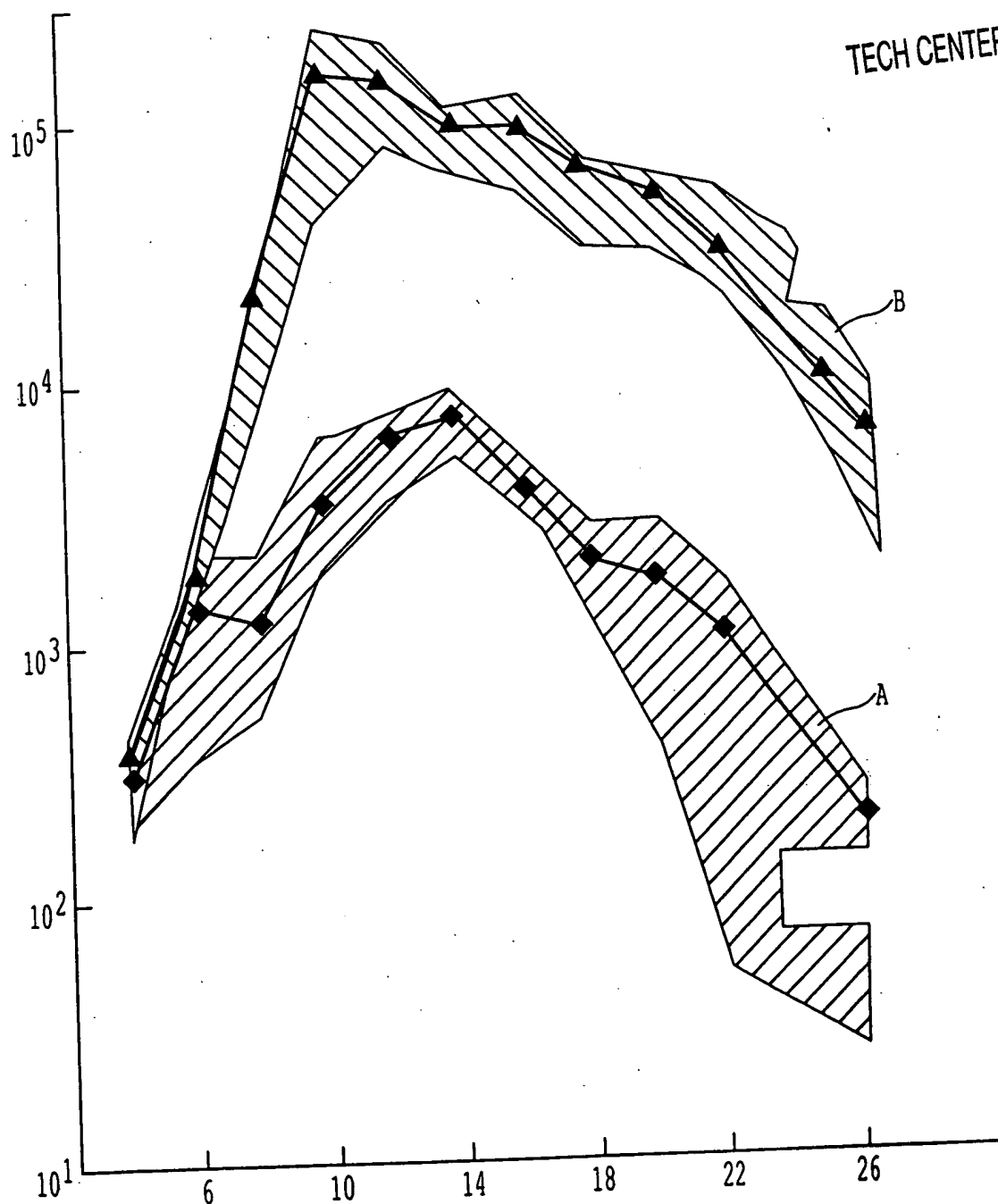


FIG. 5



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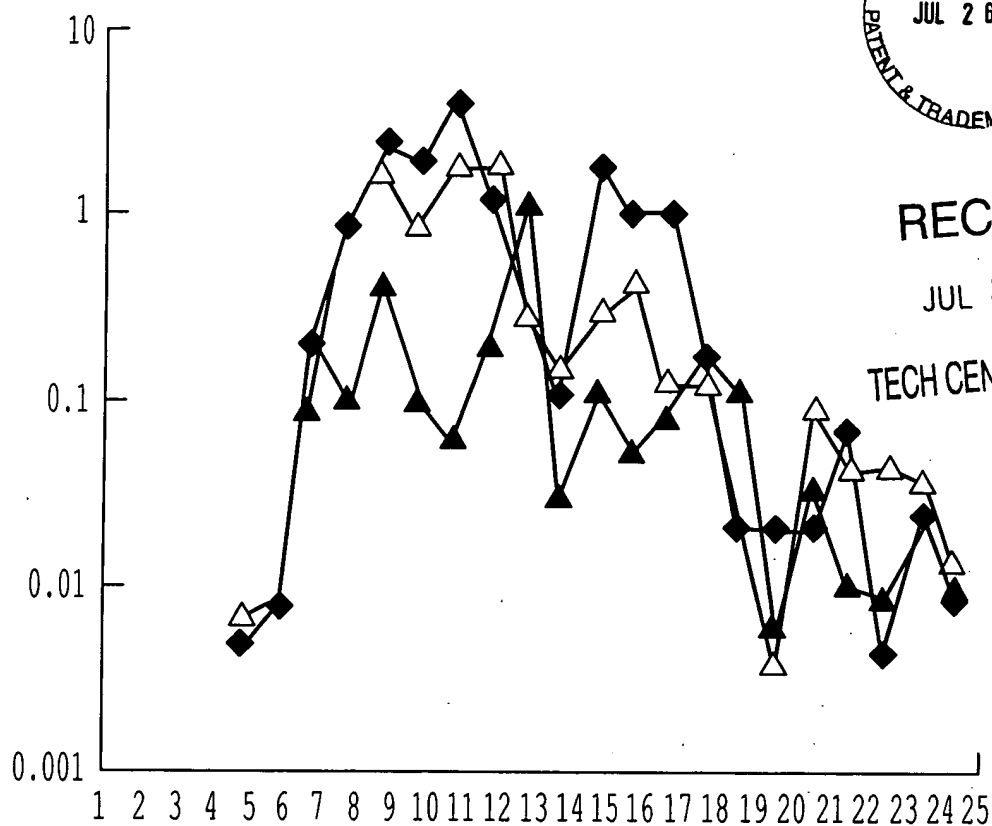


FIG. 6A

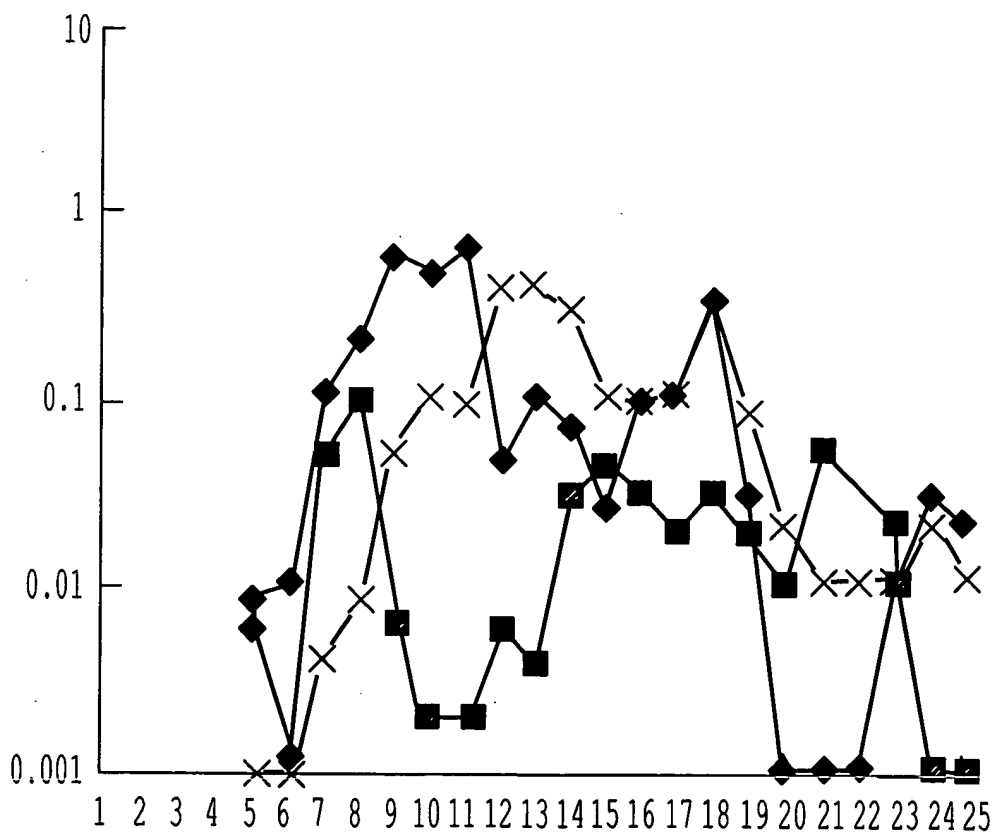


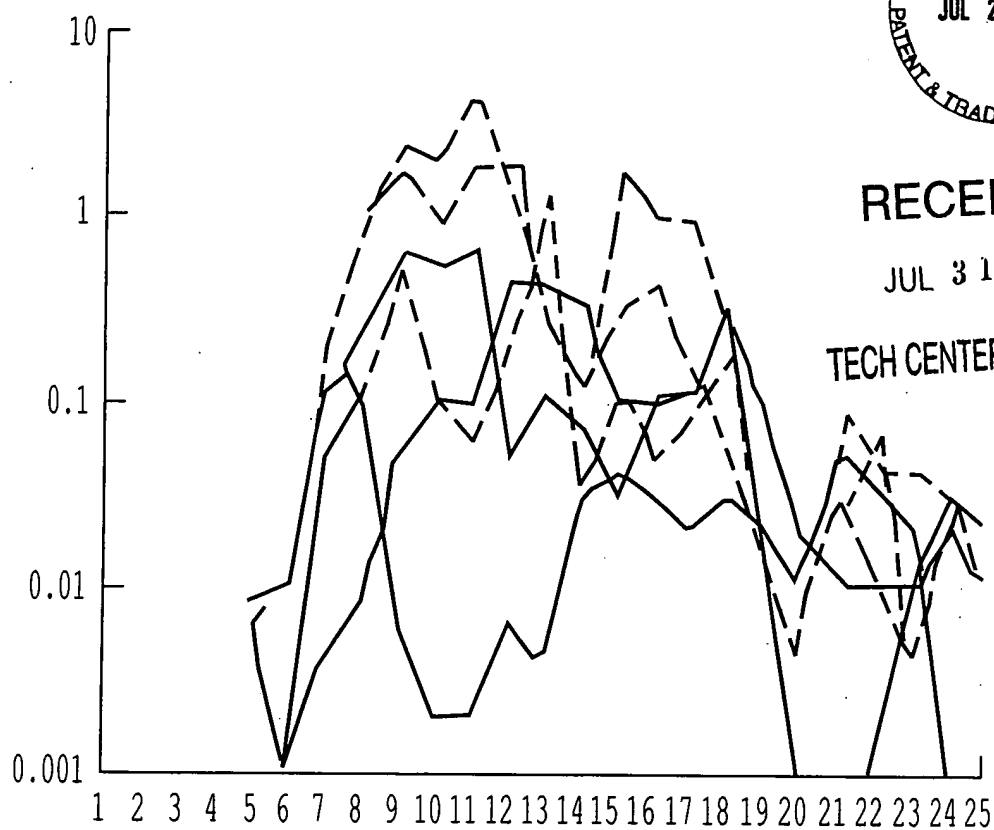
FIG. 6B



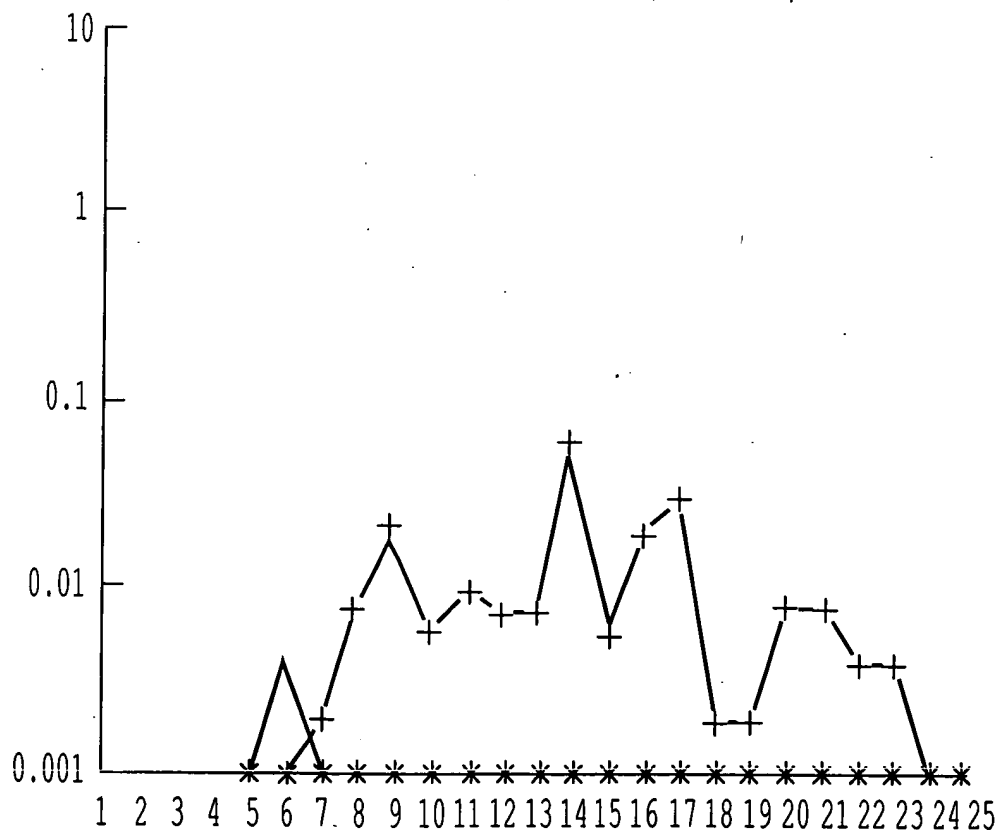
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*FIG. 6C*



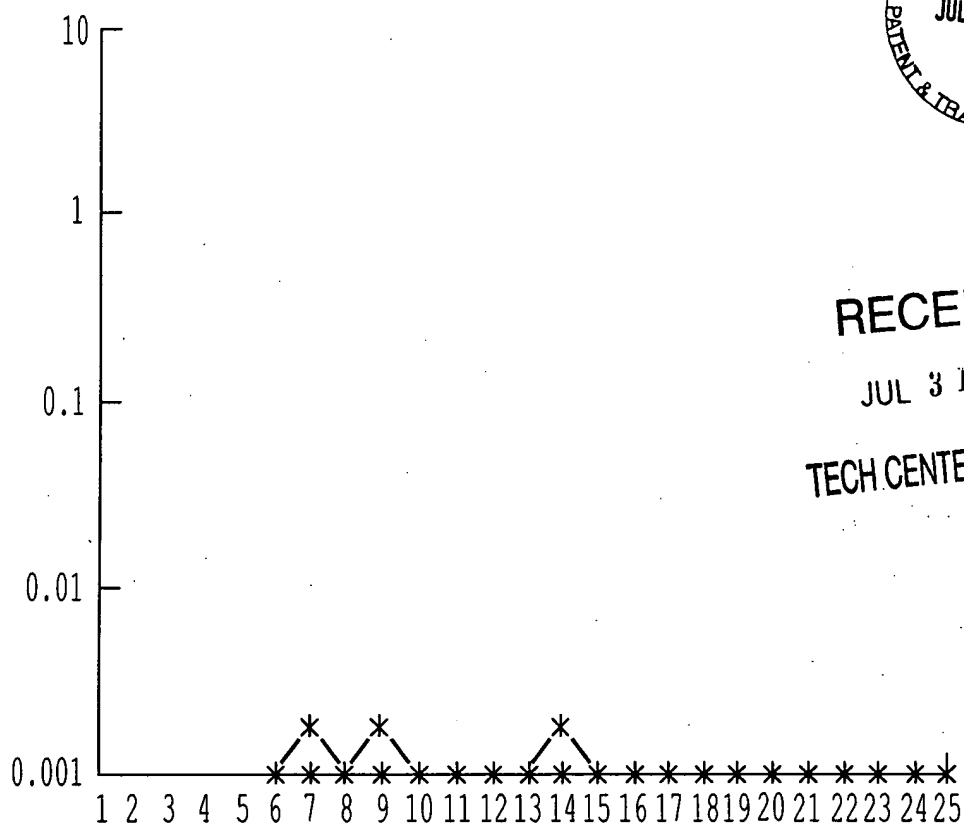
*FIG. 6D*



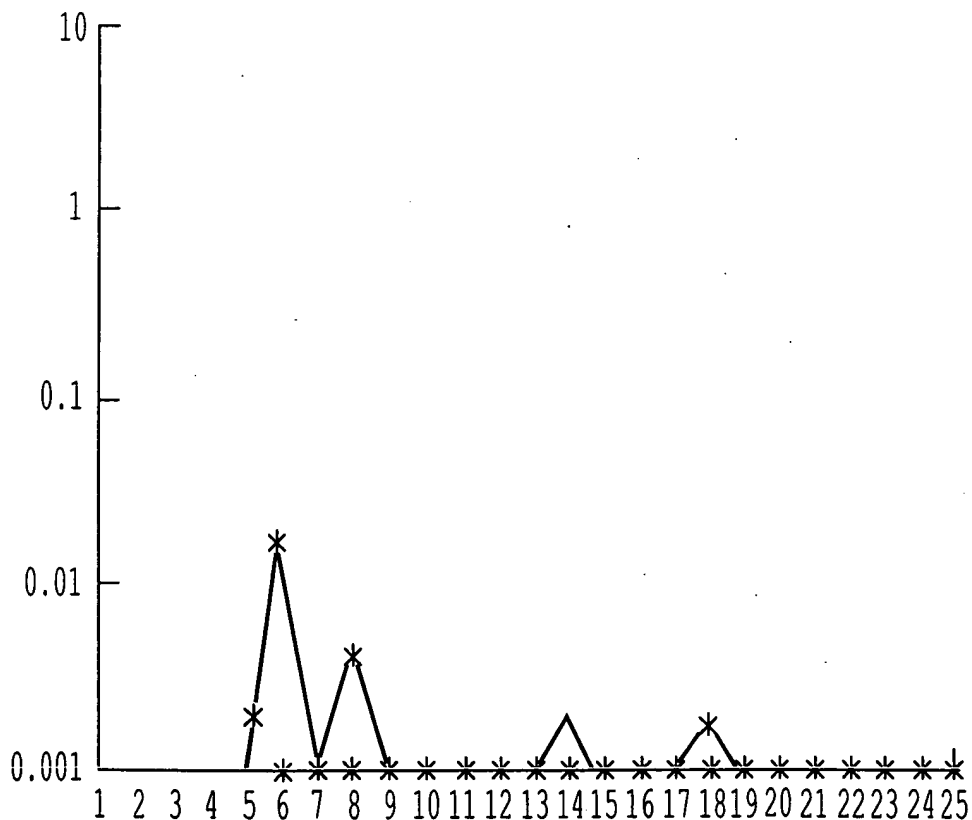
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*FIG. 6E*



*FIG. 6F*

[illegible]

- = ABSENCE OF PARASITES IN 400 MICROSCOPIC FIELDS

FIG. 6G.1

CONTINUED

TO

FIG. 6G.2

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FIG. 6G.2

**FIG. 6G.2**





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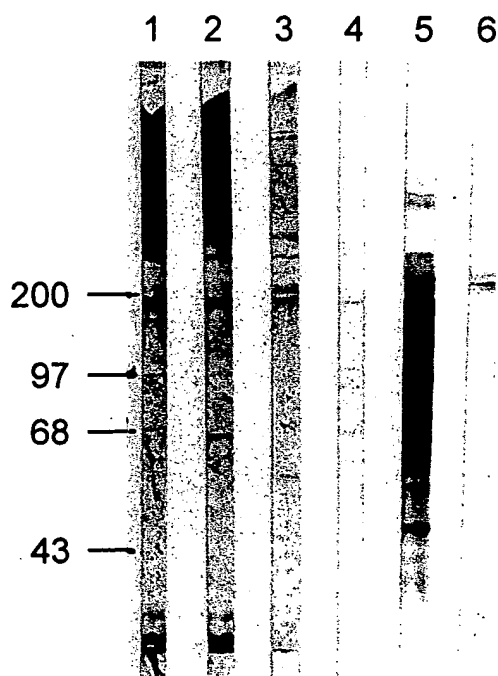


FIG.7A



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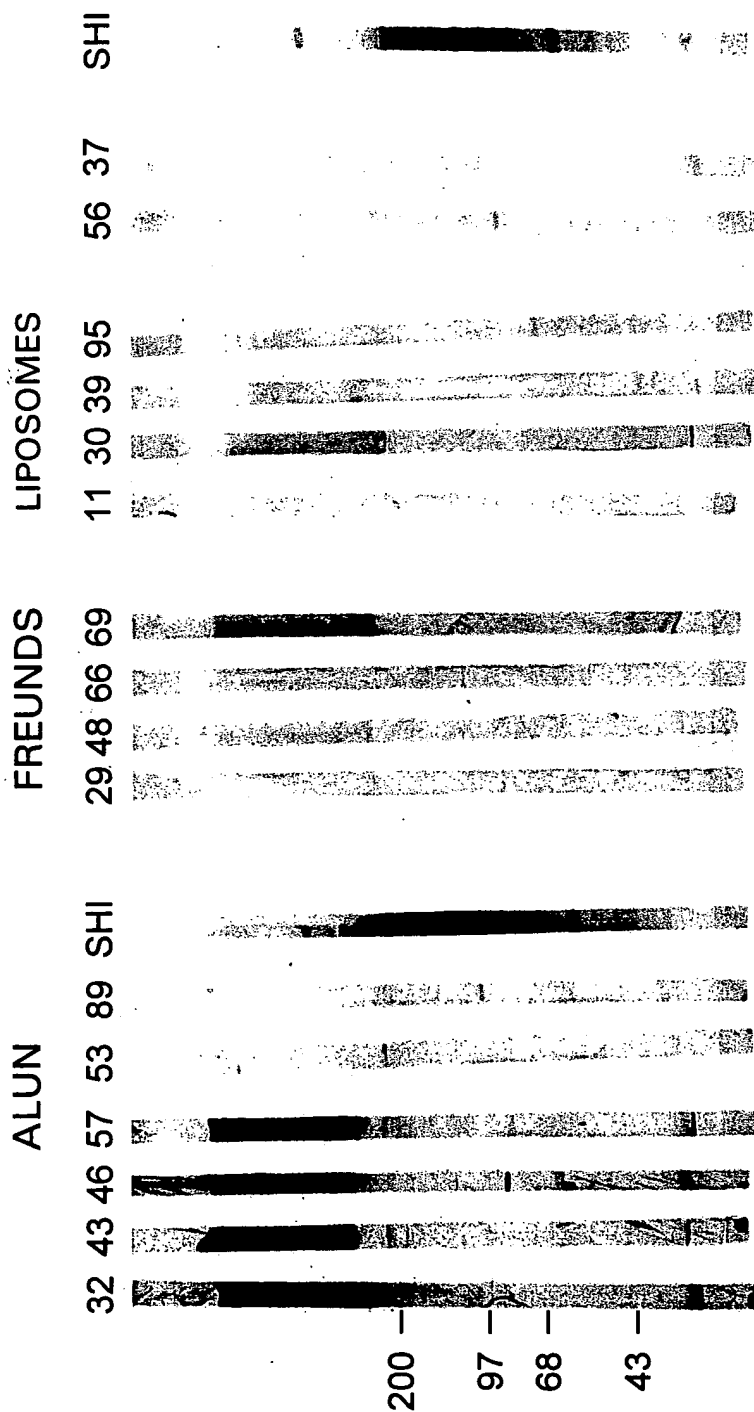


FIG. 7B

VACCINATION TEST: RECOMBINANT MSP-1 (P19) OF PLASMODIUM CYNOMOLGI IN  
THE MACACA SINICA TOQUE MACAQUE; SECOND CHALLENGE INFECTION

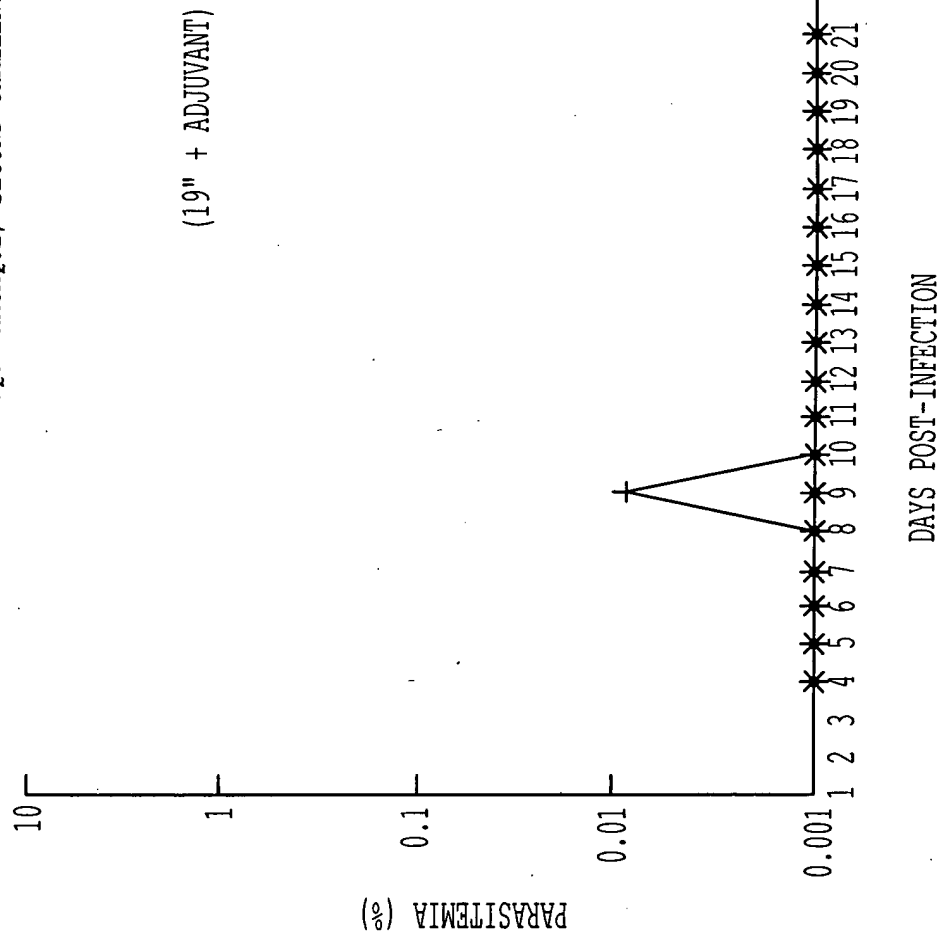


FIG. 8A



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VACCINATION TEST: RECOMBINANT MSP-1 (P19) OF PLASMODIUM  
CYNOMOLGI IN THE MACACA SINICA TOQUE MACAQUE: SECOND CHALLENGE INFECTION

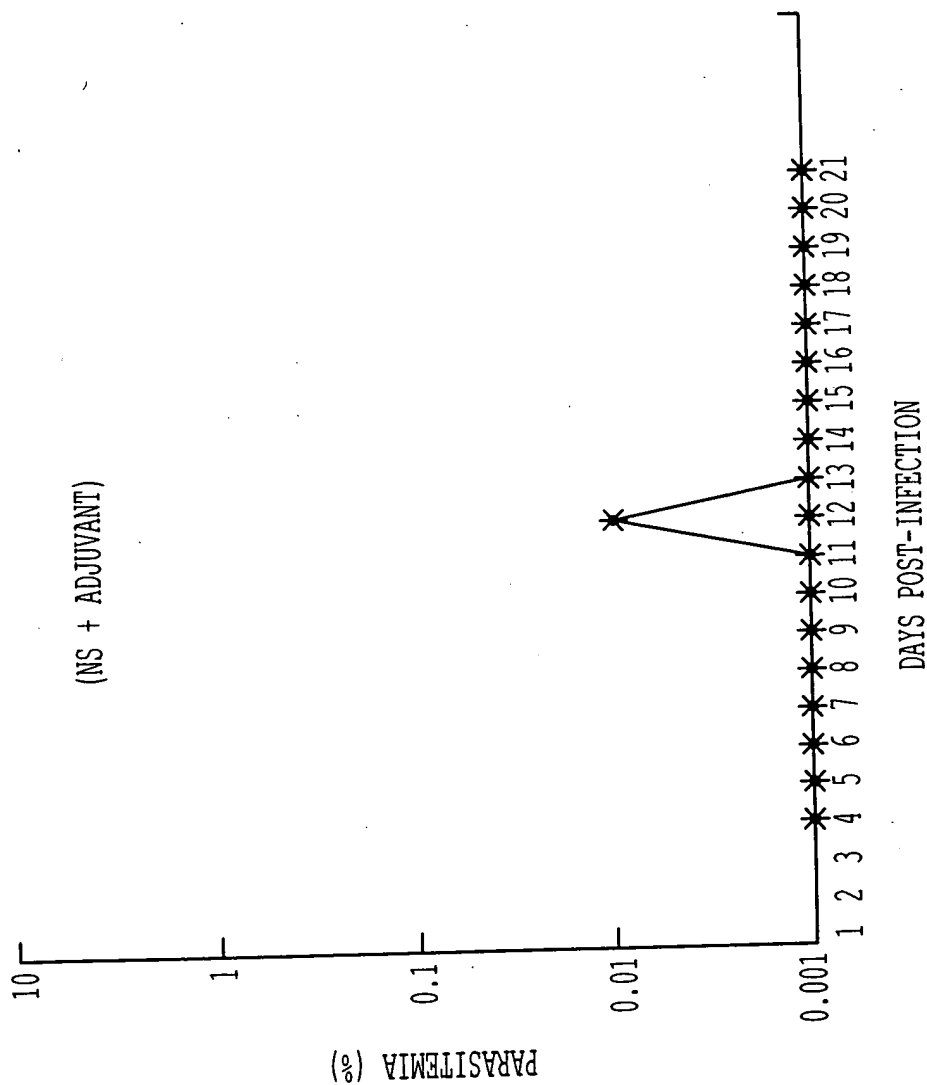


FIG. 8B

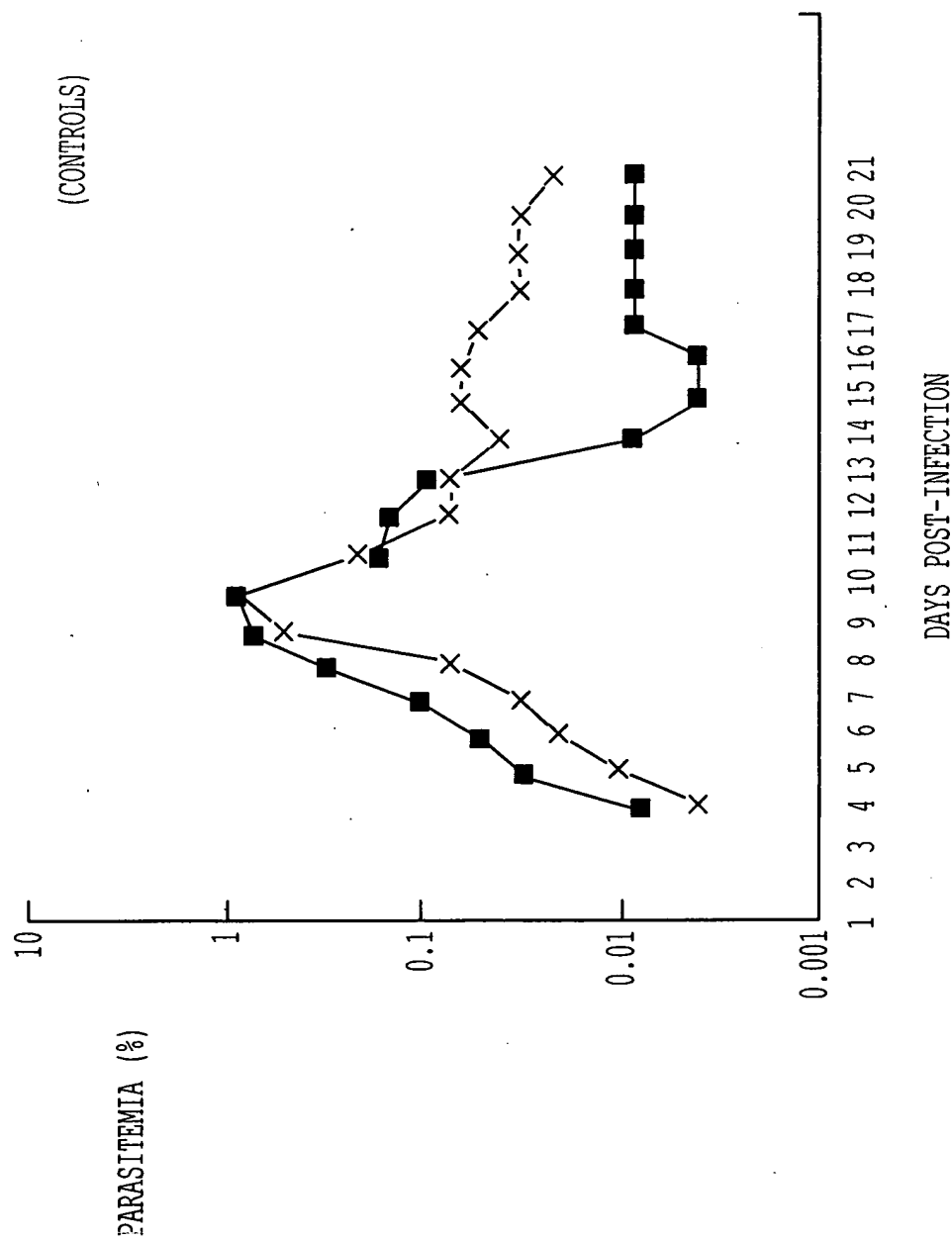


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VACCINATION TEST: RECOMBINANT MSP-1 (P19) OF PLASMODIUM  
CYNOMOLGI IN THE MACACA SINICA TOQUE MACAQUE; SECOND CHALLENGE INFECTION



*FIG. 8C*

YEAR	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
MONTH	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
DAYS POST-INFECTION	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DAYS AFTER CHALLENGE	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

[illegible][illegible]

**NON VACCINATED**

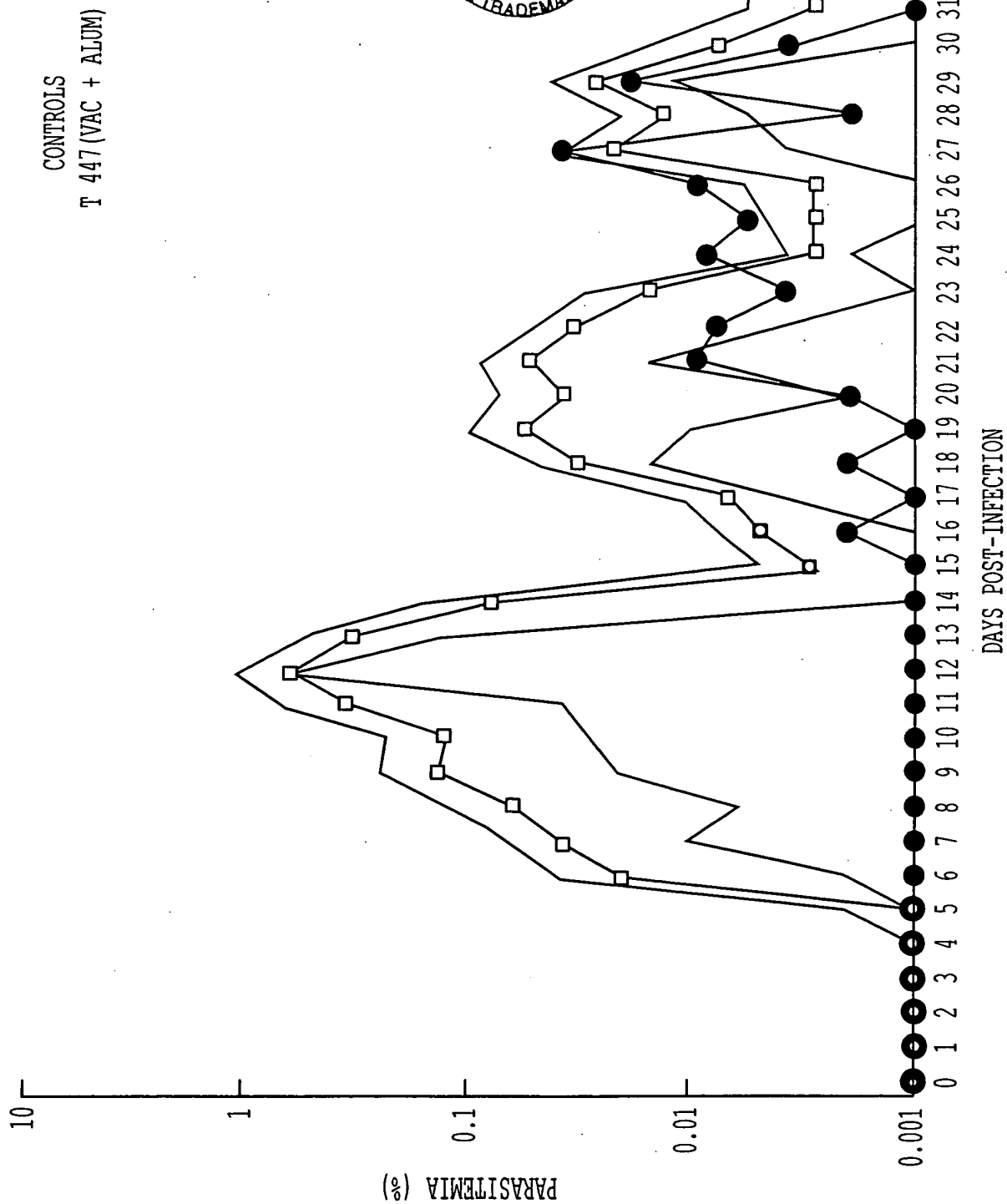
	0.05	0.1	0.3	0.7	0.8	0.16	0.14	0.09	0.008	0.004	0.008	0.008	0.008
T448	.008	.03	.05	0.1	0.3	0.7	0.8	0.16	0.14	0.09	0.008 <td>0.004 <td>0.008 </td></td>	0.004 <td>0.008 </td>	0.008
T449	.004	.01	.02	0.3	0.07	0.5	0.8	0.2	0.07	0.07	0.04	0.06	0.03

- = ABSENCE OF PARASITES IN 400 MICROSCOPIC FIELDS

**FIG. 8D**

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FIG. 9A



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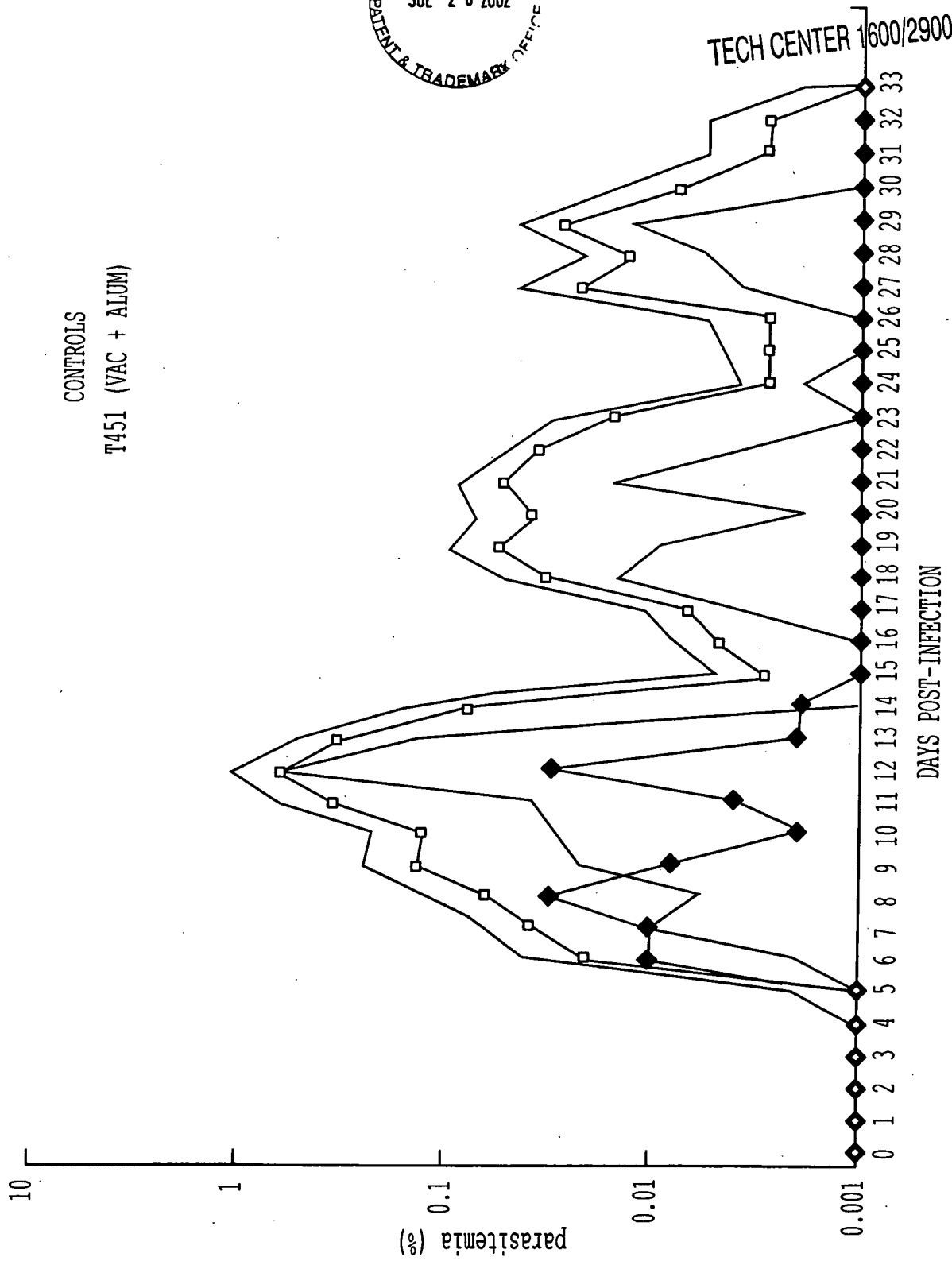


FIG. 9B



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CONTROLS  
T466 (VAC +ALUM)

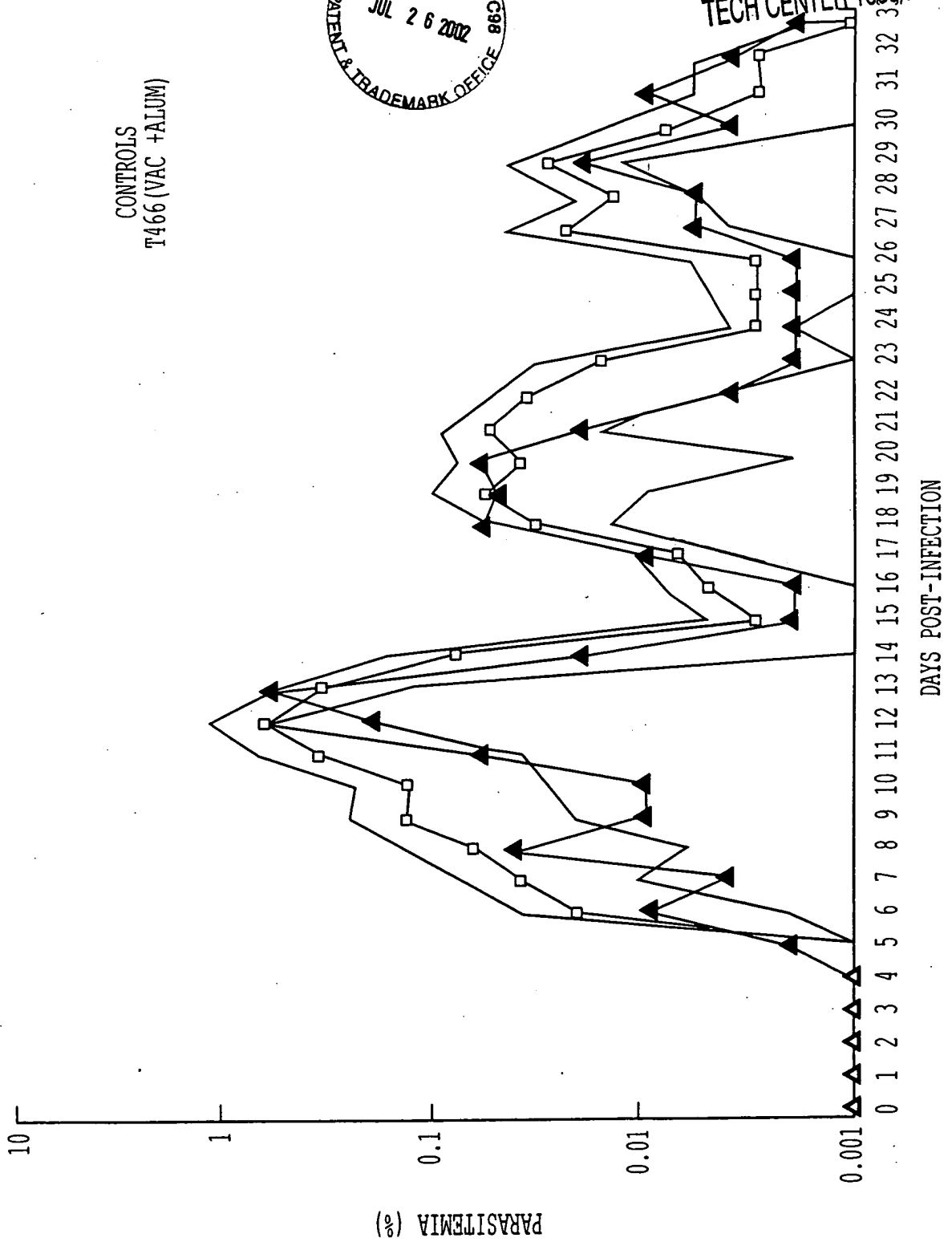


FIG. 9C

PARASITEMIA (%)

10  
1  
0.1  
0.01  
0.001

CONTROLS



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DAYS POST-INFECTION

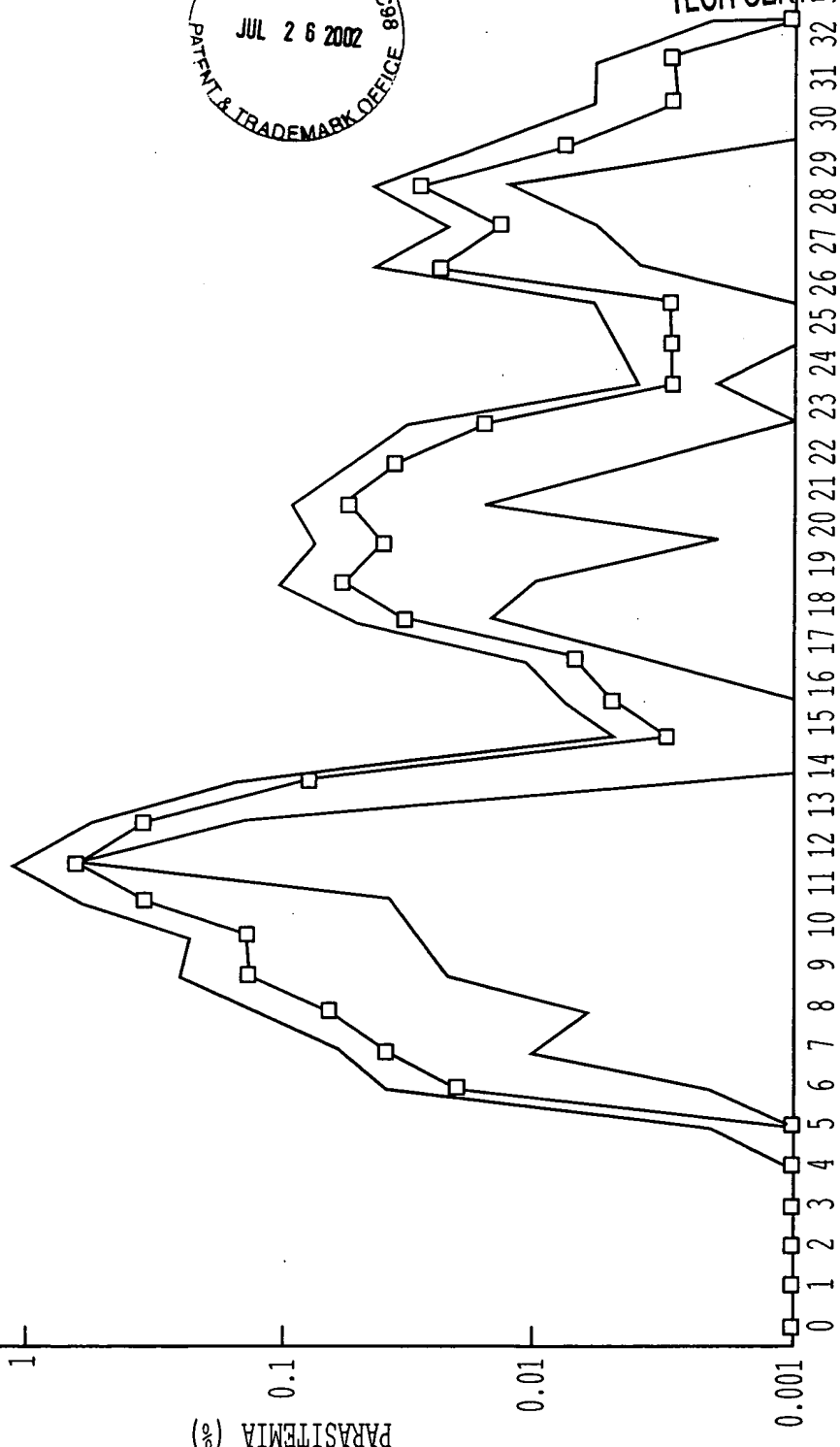


FIG. 9D

VACCINATION TEST: P. CYNOMOLGI/TOQUE MACAQUE WITH MSP-1 P19 OF P.  
CYNOMOLGI IN ALUM

YEAR	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
MONTH	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
DAY	17	18	19	20	21	22	23	24	25	26	27	28			
	5	6	7	8	9	10	11	12	13	14	15	16			

GROUP 1

(19" + ALUM)

T446	0.002	0.009	0.004	0.04	0.01	0.01	0.06	0.2	0.6	0.02	0.002	0.002
T447	-	-	-	-	-	-	-	-	-	-	-	0.002
T450	-	0.01	0.01	0.01	0.006	0.002	0.004	0.03	0.002	0.002	-	-

CONTINUED ON  
TO FIG 9E.2

GROUP 2

(NS + ALUM)

T450	0.002	0.01	0.05	0.04	0.12	0.04	0.12	0.2	0.12	0.02	0.006	0.01
T454	0.002	0.05	0.06	0.14	0.3	0.28	0.08	13	0.063	0.02	0.002	0.002
T455	-	-	-	0.008	0.05	0.08	0.14	0.4	0.3	0.2	0.002	0.002

- NEGATIVE FOR PARASITES IN 400 MICROSCOPIC FIELDS

FIG. 9E.1

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PLASMODIU FALCIPARUM VACCINATION TEST IN SAIMIRI SCIUREUS SQUIRREL MONKEY  
MSP-1p19 VACCINATION WITH ALUM

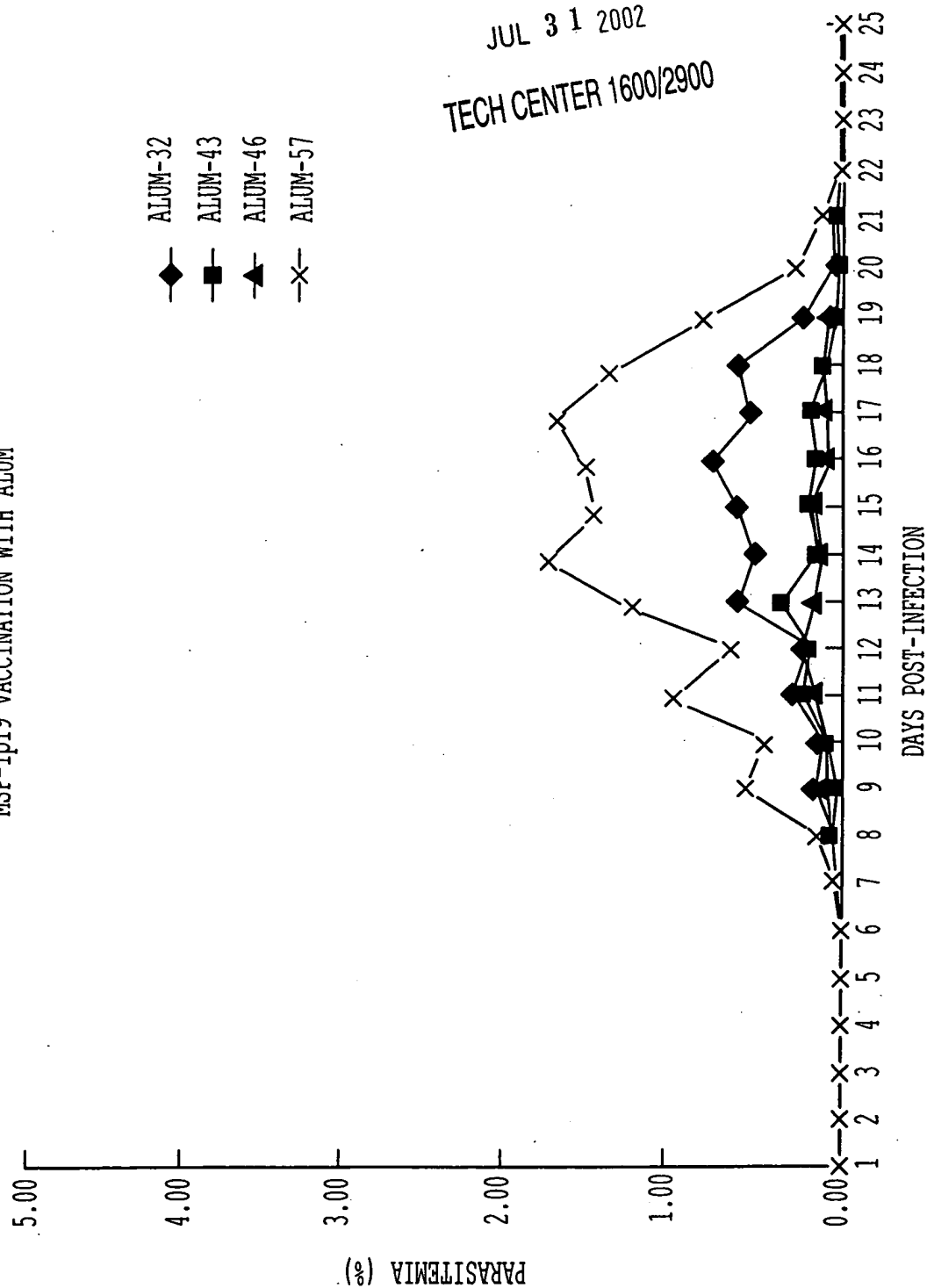
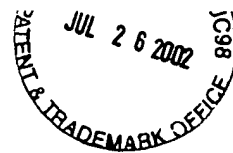


FIG. 10A

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PLASMODIUM FALCIPARUM VACCINATION TEST IN SAIMIRI SCIUREUS SQUIRREL MONKEY

MSP-1 p19 VACCINATION WITH FREUNDS

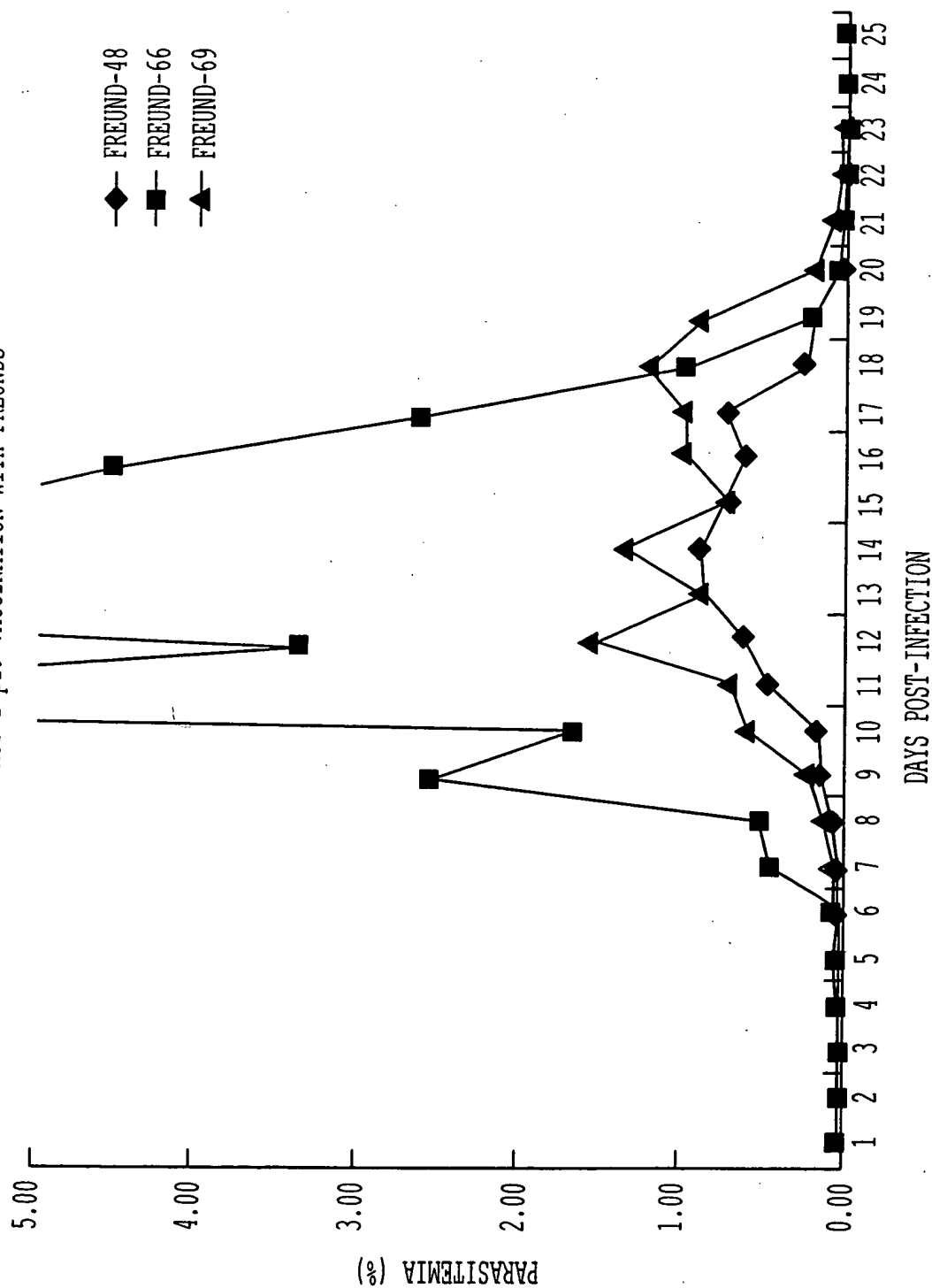


FIG. 10B

PLASMODIU FALCIPARUM VACCINATION TEST IN SAIMIRI SCIUREUS SQUIRREL MONKEY  
MSP-1 p19 VACCINATION WITH LIPOSOMES

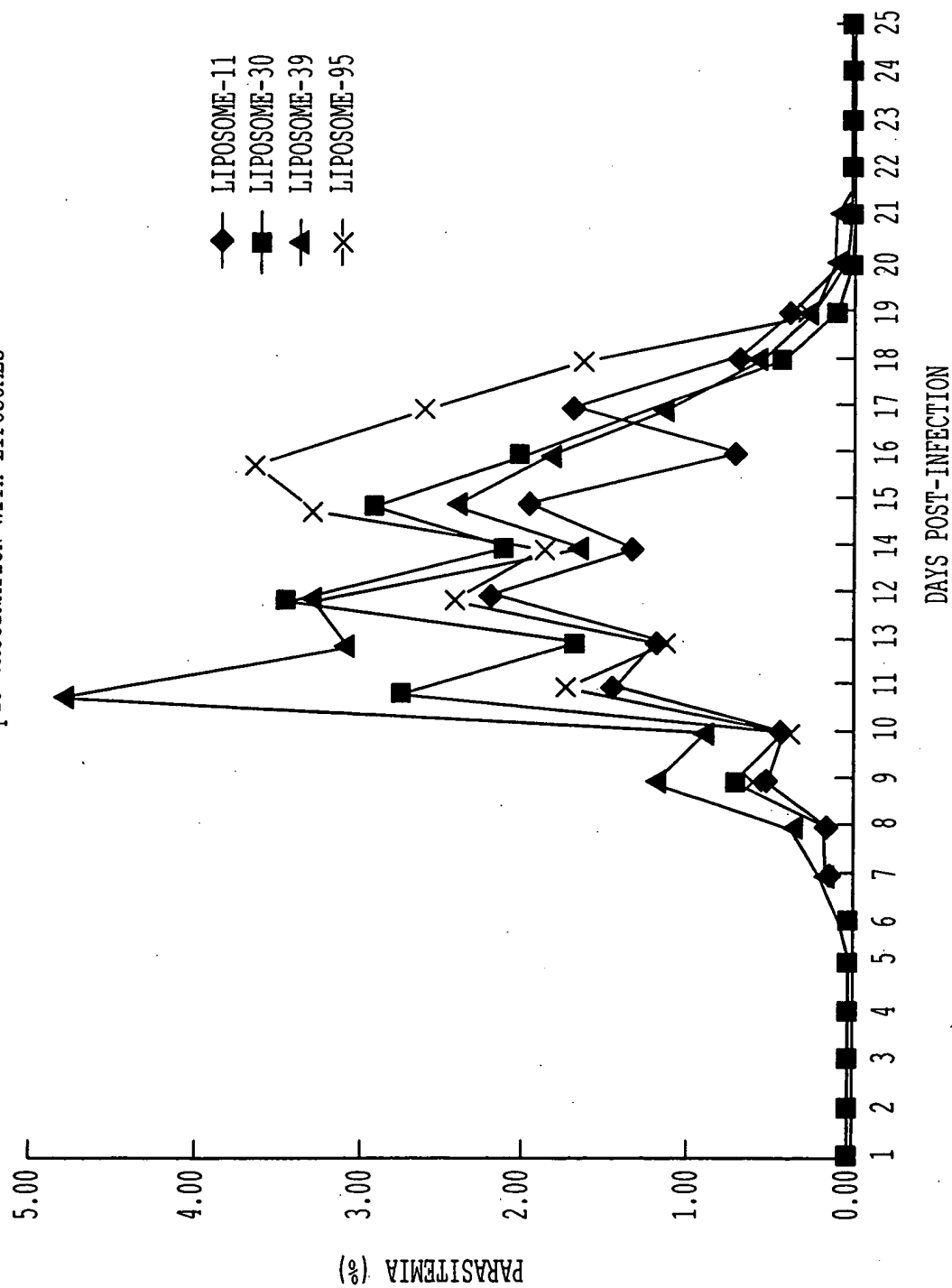
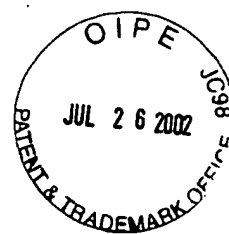


FIG. 10C



PLASMODIUM FALCIPARUM VACCINATION TEST IN SAIMIRI SCIUREUS SQUIRREL MONKEY  
ALUM CONTROL

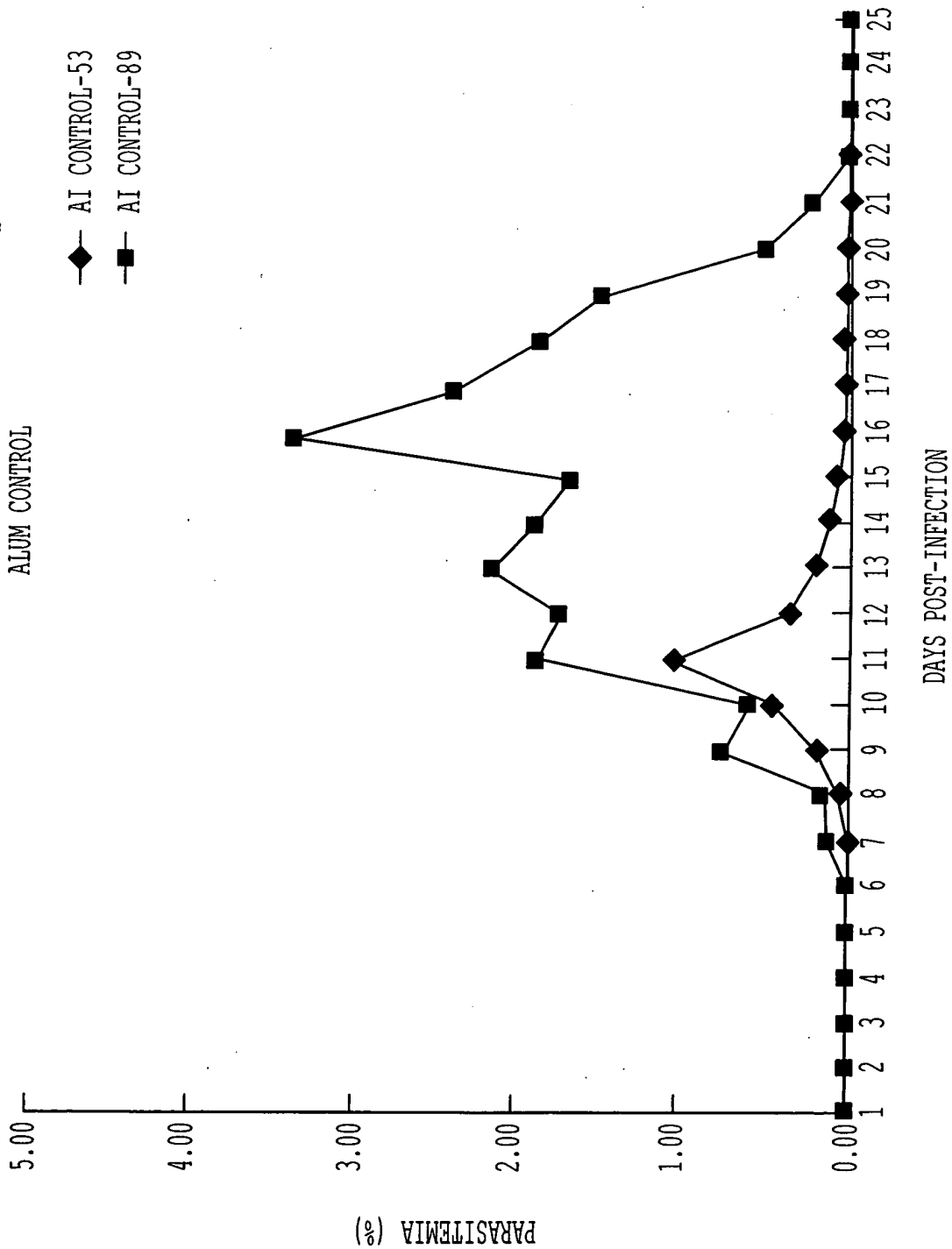


FIG. 10D

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PLASMODIUM FALCIPARUM VACCINATION TEST IN SAIMIRI SCIUREUS SQUIRREL MONKEY  
FREUNDS CONTROL

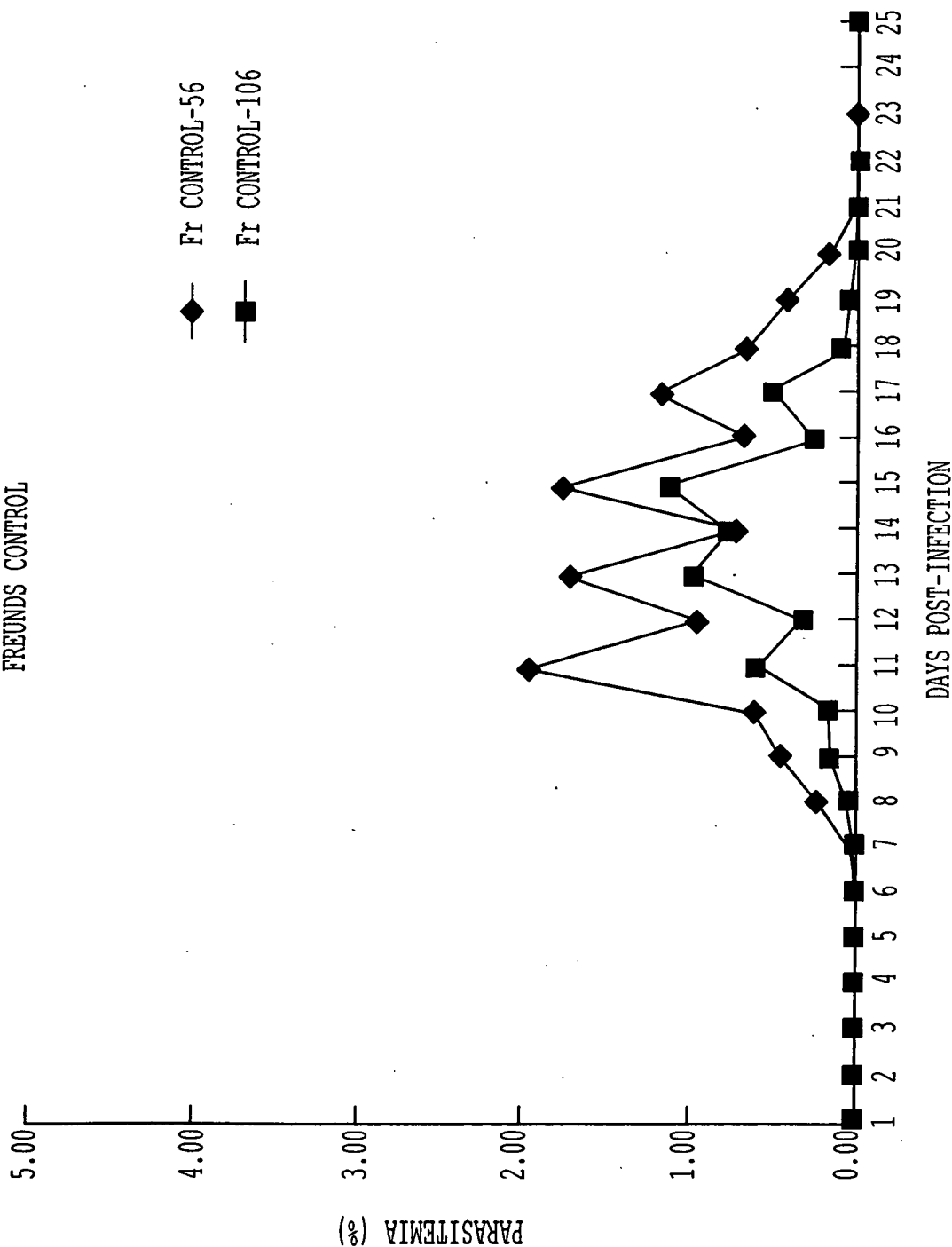


FIG. 10E

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PLASMODIUM FALCIPARUM VACCINATION TEST IN SAIMIRI SCIUREUS SQUIRREL MONKEY

LIPOSOME CONTROL

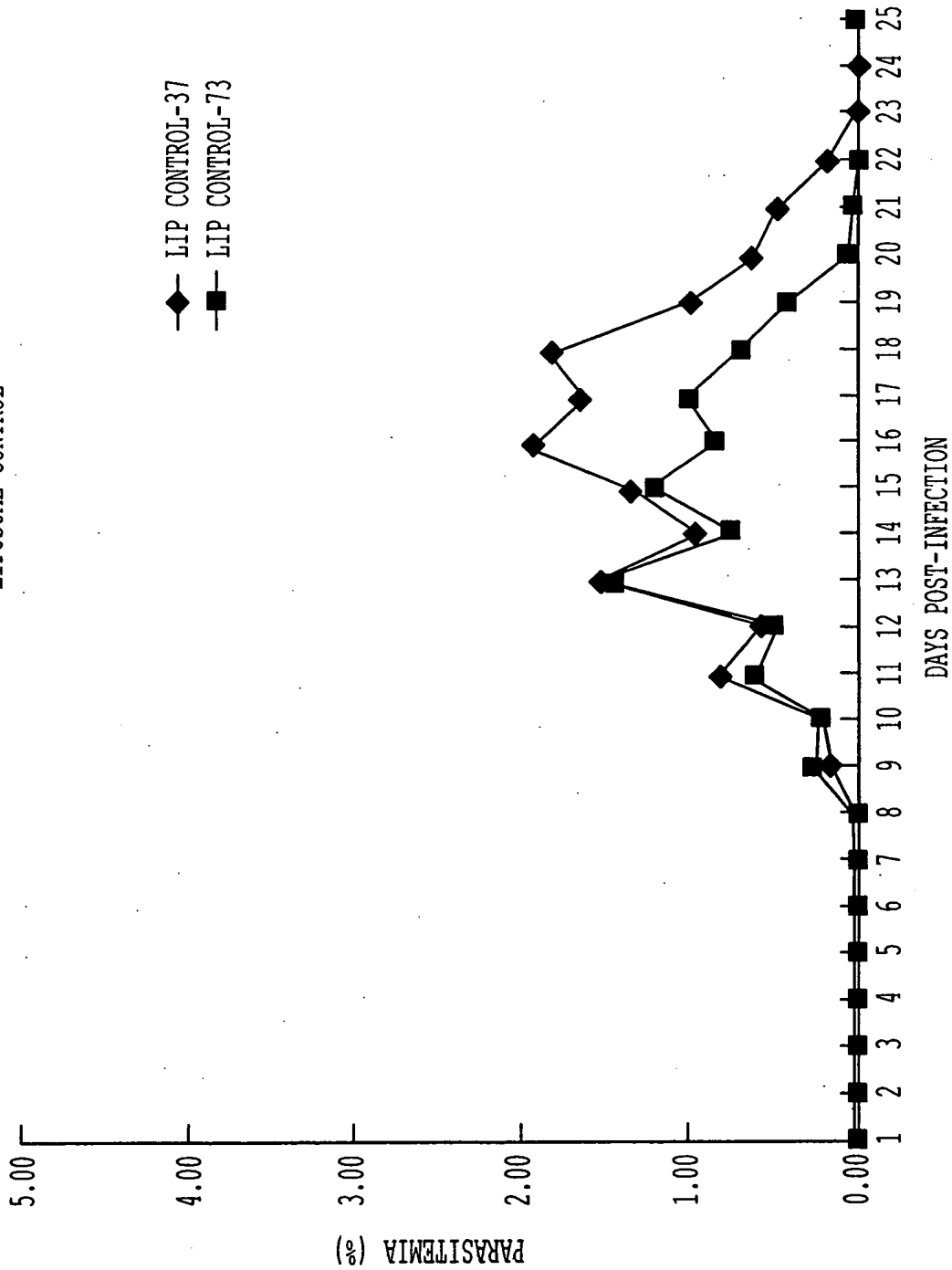


FIG. 10F

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PLASMODIUM FALCIPARUM VACCINATION TEST IN SAIMIRI SCIUREUS SQUIRREL MONKEY  
 PHYSIOLOGICAL WATER CONTROL

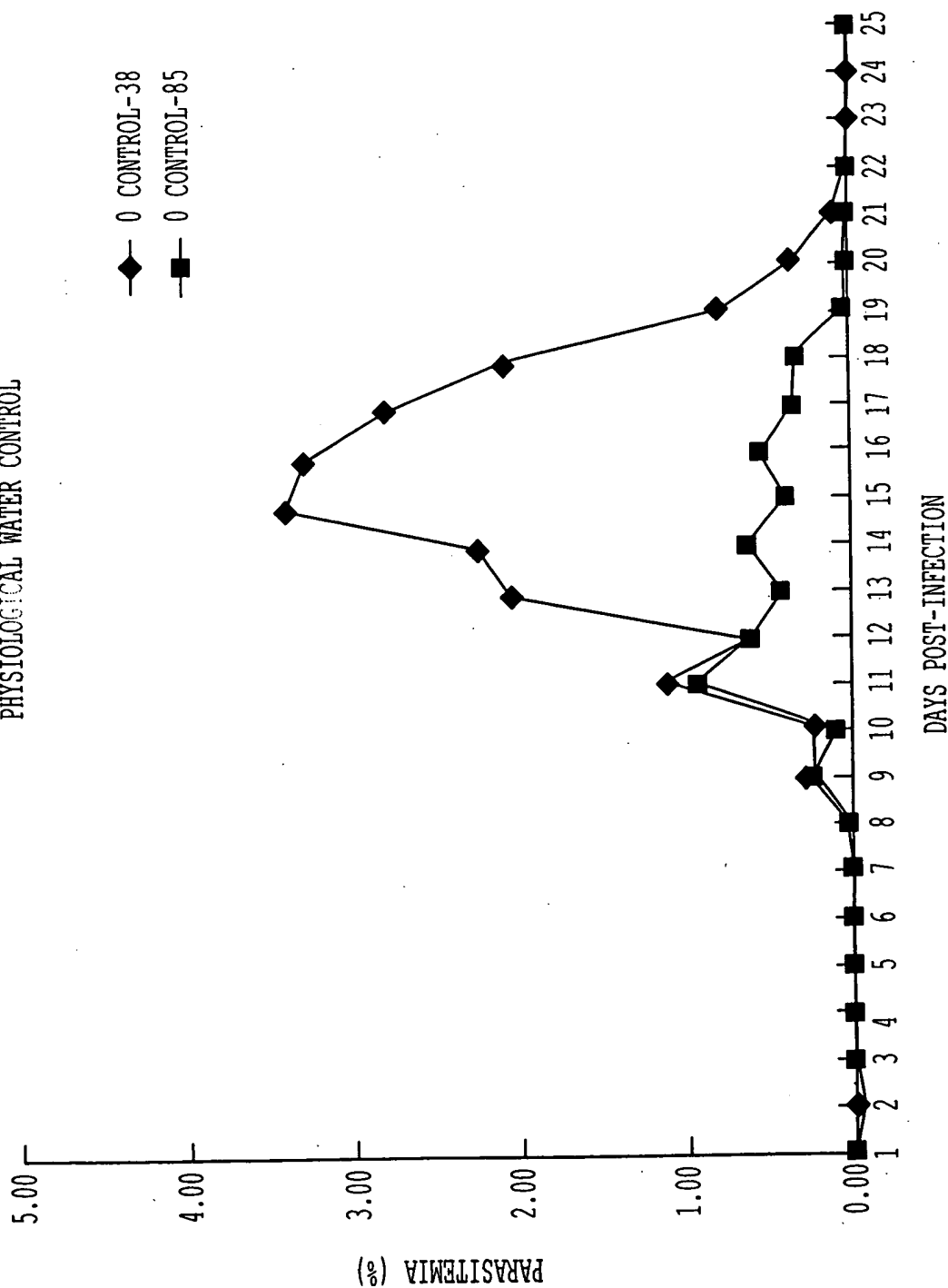


FIG. 10G

